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Docket No. RSW920000080US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTORS: David A. Selby

Examiner: C. Bleck
Art Unit: 3626

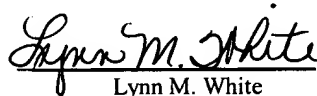
APPLICATION NO. 09/628,398

FILED: August 1, 2000

**TITLE: METHOD AND SYSTEM FOR PREDICTION OF
MATERIALIZATION OF A GROUP RESERVATION**

CERTIFICATE OF MAIL

I hereby certify that this paper is being deposited with the U.S. Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Commissioner for Patents, MAIL STOP APPEAL BRIEF-PATENTS, P.O. Box 1450, Alexandria, VA 22313-1450, Attention: Board of Patent Appeals and Interferences on December 16, 2005.


Lynn M. White

Commissioner for Patents
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Attention: Board of Patent Appeals and Interferences

APPELLANTS' BRIEF

This brief is in furtherance of the Notice of Appeal filed in this case on January 21, 2005. It is resubmitted pursuant to the Notification of Non-Compliant Appeal Brief, dated November 16, 2005. It is submitted that this brief is in compliance with 37 CFR 41.37.

December 16, 2005

This brief is transmitted in triplicate. The requisite fee (\$500.00) set forth in §1.17(f) is authorized to be charged to Deposit Account No. 09-0457. Enclosed with the initial submission of the Appeal Brief on April 25, 2005 was a Petition for extending the period for response for one month, to April 25, 2005 (April 24 being a Sunday), and a Credit Card Payment Form authorizing payment of the extension fee.

1. REAL PARTY IN INTEREST

The present application is assigned to International Business Machines Corporation, having its principal place of business at New Orchard Road, Armonk, NY 10504. Accordingly, International Business Machines Corporation is the real party in interest.

2. RELATED APPEALS AND INTERFERENCES

The appellant, assignee, and the legal representatives of both are aware of a pending appeal in U.S. Application No. 09/628,400, this is commonly assigned to the assignee of the present invention, and which may contain similar issues.

3. STATUS OF CLAIMS

- A. Claims canceled: None
- B. Claims withdrawn from consideration but not canceled: None
- C. Claims pending: 1-26
- D. Claims allowed: None

E. Claims rejected: 1-26

F. Claims appealed: 1-26

Appealed claims 1-26 as currently pending are attached as the Claims Appendix hereto.

4. STATUS OF AMENDMENTS

No amendment after final was filed in the present case. A Reply under 37 C.F.R. §1.111 was filed on May 28, 2003, which resulted in a final Office Action, dated August 5, 2003. A Reply under 37 C.F.R. §1.116 was filed on December 5, 2003, but did not result in allowance. A Request for Continued Examination (RCE) was filed on February 9, 2004. A Reply under 37 C.F.R. §1.112 was filed on July 21, 2004 and resulted in the final Office Action appealed herein.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER

Claim 1: A method, using a processing device, for materialization forecasting with respect to group reservations made by a group coordinator for the potential purchase of a particular perishable commodity, comprising the steps of: gathering past system-wide reservation information relating to past group reservations for perishable commodities that have already perished, said system-wide reservation information including information unrelated to said particular perishable commodity (*page 17, line 4 to page 18, line 17*); gathering current reservation information relating to a current group reservation for said particular perishable commodity, which current group reservation has not yet perished (*page 18, line 18 to page 19, line 12*); comparing said gathered past reservation

information unrelated to said particular perishable commodities and said current reservation information, using said processing device (*page 19, lines 15-19*); calculating, using said processing device, the materialization level of said current group reservation based on said comparison (*page 19, lines 15-19*); and outputting a materialization forecast result for said current group reservation based on said calculated materialization level (*page 19, line 19 to page 20, line 3*).

Claim 14: Computer-readable code embodied on computer-readable media for conducting materialization forecasting with respect to group reservations made by a group coordinator for the potential purchase of a particular perishable commodity, comprising: first subprocesses for gathering past system-wide reservation information relating to past group reservations for perishable commodities that have already perished, said past system-wide reservation information including information unrelated to said particular perishable commodity (*page 17, line 4 to page 18, line 17*); second subprocesses for gathering current reservation information relating to a current group reservation for said particular perishable commodity, which current reservation information has not yet perished (*page 18, line 18 to page 19, line 12*); third subprocesses for comparing said gathered past reservation information unrelated to said particular perishable commodity and said current reservation information (*page 19, lines 15-19*); fourth subprocesses for calculating the materialization level of said current group reservation based on said comparison (*page 19, lines 15-19*); and fifth subprocesses for outputting a materialization forecast result for said current group reservation based on said calculated materialization level (*page 19, line 19 to page 20, line 3*).

The present invention provides a system and method for predicting the likelihood of materialization of pending reservations for the purchase of perishable commodities, reserved as part of a group booking, which system and method provides for the gathering and analysis of *reservation information* pertaining to perishable commodities for which group reservations for purchase have been made in the past, gathering and analysis of *reservation information* pertaining to perishable commodities for which group reservations for purchase are currently pending, and determining, based upon the analysis, the likelihood that a particular pending group reservation will actually be purchased or "materialize". See specification, page 15, line 3, through page 20, line 3.

The term "reservation information" (both past and current) is clearly defined in the specification of the present invention as including commodity details, demographic information, and/or POS information relating to past or current reservations for perishable commodities. See specification, page 11, line 12, through page 12, line 2. All of this *reservation information* is directed to all *reservations* that have been made, including reservations made for commodities unrelated to the commodity being reserved. That is, they do not focus on a specific flight or other specific commodity; instead, they are related to all available commodities. See specification, page 17, line 15, through page 18, line 17.

By gathering and analyzing data relating to the reservations on a global basis in this manner, characteristics of purchasers, commodities, and types of purchases can be analyzed and identified and utilized to characterize reservations generally and the people who made them, rather than specifically characterize one particular commodity (e.g., a particular flight).

6. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Rejection of claims 1-26 under 35 U.S.C. §112;
2. Rejection of claims 1-2 and 14-15 under 35 U.S.C. §103 based on U.S.

Patent No. 4,775,936 to Jung; and

3. Rejection of claims 3-13 and 16-26 under 35 U.S.C. §103 based on U.S.

Patent No. 4,775,936 to Jung and/or U.S. Patent No. 5,648,900 to Bowen et al.

7. ARGUMENT

A. The Claims Meet the Requirements of 35 U.S.C. §112

In rejecting the claims under 35 U.S.C. §112, the Examiner rejects the claims based on her assertion that they contain "negative limitations". Specifically, the Examiner asserts that the phrase "past reservation information including information unrelated to said particular perishable commodity" is a negative limitation, and then asserts that because of the negative limitation, the claim is indefinite.

Applicant respectfully traverses this rejection. Negative limitations in claims are not, *per se*, improper and do not automatically render claims indefinite. Numerous cases have approved the use of negative limitations, and indeed, the M.P.E.P. has an entire section, §2173.05(i), directed to negative limitations. As set forth in the very first sentence of the above-cited M.P.E.P. section:

"The current view of the courts is that there is nothing inherently ambiguous or uncertain about a negative limitation. So long as the boundaries of the patent

protection sought are set forth definitely, albeit negatively, the claim complies with the requirements of 35 U.S.C. §112, second paragraph." M.P.E.P. §2173.05(i).

In the present application, there are two categories of reservation information of relevance. The first category is current reservation information relating to current reservations for a particular perishable commodity that has not yet perished. This would be, for example, reservation information for a seat on a particular flight, e.g., Flight 50 from Paris to London on British Airways.

The second category is past system-wide reservation information relating to past reservations for perishable commodities that have already perished. In particular, with respect to the second category, the system-wide past reservation information includes information related to the particular perishable commodity, e.g., reservation information regarding previous instances of the particular flight and flight number (Flight 50, mentioned above), as well as reservation information related to perishable commodities other than that same perishable commodity (e.g., reservation information pertaining to a flight between two different cities, or reservation information pertaining to a flight between the same two cities, but a different flight number).

The phrase "including information unrelated to said particular perishable commodity" was added in response to a rejection made by the patent examiner. While applicant does not think it is a necessary limitation, it is applicant's position that by including this limitation, it makes a clear distinction between reservation information pertaining to, in the airline example, Flight 50 leaving daily between Paris and London, and reservation information for other flights, such as a Flight 26 leaving on Sundays between Philadelphia and London. This language provides

definiteness to the claims, clearly expressing the differences between the two categories of information. Accordingly, it is submitted that the claims meet the requirements of 35 U.S.C. §112.

B. The Cited Art Does Not Render the Claims Obvious

As set forth in the MPEP:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combined reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143

The Examiner Has Not Established a *prima facie* Case of Obviousness

U.S. Patent No. 4,775,936 to Jung ("Jung") teaches a system which tracks the frequency with which a particular flight segment (or segments) experiences overbooking or underbooking, and based on this statistical analysis, increases the point at which an upcoming occurrence of that particular flight segment is considered "closed" to a number greater than 100% of capacity of the aircraft, with the exact percentage greater than 100% being based upon the historical data for that flight.

U.S. Patent No. 5,648,900 to Bowen et al. ("Bowen") teaches a computerized reservation system including controlling and monitoring of group travel-related services. Using the system of Bowen, an administrator managing a group reservation can make a single change to any one of the master inventory, group control records, group passenger name records, and appropriate

changes are automatically made for all within the group. The Examiner relies on Bowen for an alleged teaching of controlling and monitoring of group travel-related services including storing in a storage unit information related to an historical and current group control record comprising information such as the name and ID of the owner and organizer of the group travel, the group name, the wholesaler's address, the phone number of the owner, the inventory items obtained from a master inventory, the date contained on the inventory item on which unused inventory must be returned to a provider, an airline record locator, departure and arrival cities, the dates of travel.

The present invention focuses on *reservation information* relating to past and current group reservations for perishable commodities. *Reservation information*, as defined in the specification, is related to all reservations and not simply related to the "traffic information" of Jung, which is limited to information pertaining to a particular flight, e.g., Flight 50 leaving daily from Paris to London. Using the Jung system, only information pertaining to a specific flight is analyzed, and based upon past history of that flight, the decisions are made regarding booking levels.

This specific, all-inclusive definition of "reservation information" is clearly set forth in the specification:

"As an example, assume that the group reservations made by David S. over the past two years have an average materialization level of 60%. Assume further that the current group reservation request from David S. being processed by current reservation processor 316 is for a group of 150 people for a non-stop, Philadelphia-to-London flight; the purpose of the trip is for a corporate business retreat; the group reservation is being made 9 months before the perishing date of the flight; a 50% non-refundable down payment is being made to hold the reservations; and the group reservation is being made by direct contact between the group coordinator and the

airline. Using the present invention, the data warehouse 300 can search for *all* previous reservations having the same attributes, and the materialization level for *all* past reservations that have the same attributes is evaluated. The past reservations that are analyzed may be individual bookings having characteristics similar to the bookings of the current group reservation request, or the analysis can be limited to past group bookings having similar characteristics. Based on this information, if it is determined that reservations having these attributes have a 98% materialization rate, this factor is applied to the current reservation, using the yield management system 314 in a well-known manner.

Using the prior art method which would look only at the past overall performance of David S., the airline would assume that only 60%, or 72 of the 150 reservations, would actually materialize, and the yield management system 314 would allow overbooking of the flight accordingly. Using the present invention, however, the airline would assume that for *this* particular group booking by David S., 98%, or 147 of the 150 reservations, would actually materialize, and the overbooking for this particular flight would be considerably less than if the prior art methods were used."

(Page 17, line 15 to page 18, line 17 of application as filed.)

To provide further clarity, the term "past system-wide reservation information" was explicitly included in the claims in one of the claim amendments. The present invention looks not at the behavior of passengers with respect to a particular flight (in an example where the commodity is airline tickets) but instead looks at the behavior of all passengers, system-wide, with respect to (a) their making a reservation and (b) their actually fulfilling the reservation. The focus is on system-wide group reservations made in the past and the details of the individuals making these reservations, such as their demographic information, the type of travel being conducted, etc.

By contrast, the Jung reference focuses specifically on the actual **flight**. Jung looks at "traffic information" which includes the passenger capacity of the vehicle, the number of passengers scheduled to be transported on the vehicle, the number of passengers actually

transported on the vehicle, the number of groups booked on the vehicle, the number of groups actually transported on the vehicle, the number of standby passengers desiring to be transported on the vehicle but not boarded, the number of standby passengers actually transported on the vehicle, the number of "10 minute rule" passengers, the number of passengers who could not be transported because the capacity of the vehicle was exceeded, and the number of passengers that voluntarily agreed not to be transported because the vehicle's capacity was exceeded. The entire focus of Jung is on a particular flight and that flight's past history. Nothing in Jung teaches or suggests the analysis of system-wide past reservation information and then the use of this past system-wide reservation information to project the likelihood that current reservations will actually materialize.

Applicant clearly has improved upon prior art methods of predicting the materialization of reservations for commodities. The Jung system is typical of many materialization systems and focuses only on historical data directly related to the commodity in question, for example, in the case of a particular flight from Washington to Paris, Jung will look at the historical tendencies of previous reservations for the same flight from Washington to Paris and then, based upon the historical results for that particular flight, increase or decrease bookings for a pending occurrence of that particular flight as appropriate. As stated previously, the present invention achieves more accurate results by, instead of focusing on the particular reservation for the particular commodity, focusing on characteristics of purchasers and other reservation attributes that have or have not resulted in materialization, and then analyzing the attributes of the pending reservation to see if these attributes point to a tendency to materialize or not materialize. In other words, in

accordance with the present invention, reservation information unrelated to the particular pending reservation is analyzed so that, for example, factors such as the time between the making of a reservation and the materialization of the reservation can be isolated and analyzed, regardless of, in the context of airline flights, which particular flight the prior reservation was for.

The prior art cited by the Examiner (Bowen and Jung) contains no suggestion of examining details relating to all flights, for example, each purchaser of tickets for any group flight reservation, each person making group reservations for any flight, the type of travel being conducted (e.g., business, pleasure, etc.), whether the person making the reservation is a frequent flyer, etc. The "traffic information" of Jung is limited to information pertaining to a particular flight segment. using the Jung system, only information pertaining to a specific flight segment is analyzed, and based upon past history of that flight segment, decisions are made regarding booking levels for an upcoming occurrence of that flight segment. Nothing in Jung suggests analyzing all flights, including those unrelated to the particular flight segment, and characterizing reservations generally using this information, as well as characterizing the people who made them, rather than specifically characterizing one particular flight as is done by Jung.

The addition of Bowen does not render the claimed invention obvious. While applicant admits that Bowen teaches controlling and monitoring group reservations, nothing in Bowen suggests analysis of group reservations for all flights and using that analysis to predict materialization for a particular group booking. Without such a suggestion, it is improper to combine the teachings of Bowen and Jung in rejecting the claimed invention; further, even if hindsight were used to make such a combination, it still would not achieve the claimed invention.

Clearly, the present application defines "reservation information" to be more than just information related to a particular flight or flight segment. The specification of the present invention specifically sets out that reservation information includes data in the data warehouse for all previous reservations (including those unrelated to the particular flight) having the same attributes, and the evaluation of the materialization level for all past reservations (including those unrelated to the particular flight) that have the same attributes, not just a particular flight as in Jung. Analyzing all reservation information (including those unrelated to the particular flight) is not taught or suggested by any of the prior art cited by the Examiner (neither Jung nor Bowen), either alone or in combination.

Without such a suggestion, it is improper to reject the claims under 35 U.S.C. §103. In fact, the references cited by the Examiner teach away from using all reservation information, preferring to focus on a particular flight precisely because, in Jung, the idea was to assume that if over-booking occurred on a particular flight segment, it would likely happen again for a later occurrence of the same flight segment. Jung would consider data pertaining to other flights as "noise" to be filtered out and ignored.

The claims specifically recite the use of reservation information, defined as information pertaining to all reservations, not just those for a specific flight. Further, they distinguish commodity details regarding a particular commodity from details unrelated to that particular commodity. They are distinguishable over any teaching or suggestion of the cited art.

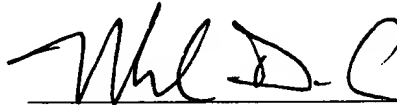
December 16, 2005

8. CONCLUSION

For the foregoing reasons applicants respectfully request this Board to overrule the Examiner's rejections and allow claims 1-26.

Respectfully submitted:

DEC. 16, 2005
Date



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APPENDIX A

CLAIMS INVOLVED IN THIS APPEAL:

1. (Previously presented) A method, using a processing device, for materialization forecasting with respect to group reservations made by a group coordinator for the potential purchase of a particular perishable commodity, comprising the steps of:

gathering past system-wide reservation information relating to past group reservations for perishable commodities that have already perished, said system-wide reservation information including information unrelated to said particular perishable commodity;

gathering current reservation information relating to a current group reservation for said particular perishable commodity, which current group reservation has not yet perished;

comparing said gathered past reservation information unrelated to said particular perishable commodities and said current reservation information, using said processing device;

calculating, using said processing device, the materialization level of said current group reservation based on said comparison; and

outputting a materialization forecast result for said current group reservation based on said calculated materialization level.

2. (Previously presented) The method as set forth in claim 1, wherein said past reservation information includes historical commodity details unrelated to said particular perishable commodity.

3. (Previously presented) The method as set forth in claim 2, wherein said past reservation information further includes Point-of-Sale (POS) information included in said past system-wide reservation information that is unrelated to said potential purchase of said particular perishable commodity.

4. (Previously presented) The method as set forth in claim 3, wherein said past reservation information further includes materialization information unrelated to said potential purchase of said particular perishable commodity.

5. (Original) The method as set forth in claim 4, wherein said past reservation information includes demographic information about group coordinators who made said past group reservations.

6. (Original) The method as set forth in claim 5, wherein said demographic information includes one or more of the following pertaining to said group coordinators who made said past group reservations: age, sex, national origin, citizenship, country of residence, occupation, employer, annual income, education.

7. (Previously presented) The method as set forth in claim 6, wherein said current group reservation information further includes commodity details regarding said particular perishable commodity.

8. (Previously presented) The method as set forth in claim 7, wherein said current group reservation information further includes POS information pertaining to said particular perishable commodity.

9. (Previously presented) The method as set forth in claim 8, wherein said current reservation information includes demographic information about a group coordinator making said current reservation for said particular perishable commodity.

10. (Original) The method as set forth in claim 9, wherein said demographic information includes one or more of the following pertaining to said group coordinator making said current group reservation: age, sex, national origin, citizenship, country of residence, occupation, employer, annual income, education.

11. (Previously presented) The method as set forth in claim 10, wherein said perishable commodities comprise airline seats, and wherein said historical commodity details include information related to one or more of the following with respect to said airline seats: carrier name, flight origin, flight destination, booking class, flight distance, departure time, connection time, arrival time, departure date, arrival date, flight duration, number of distinct legs comprising a complete one-way itinerary, aircraft type, aircraft capacity.

12. (Original) The method as set forth in claim 11, wherein said POS information includes one or more of the following: POS type, POS country, booking carrier, booking recency, change recency, fare code, number of passengers in said past group reservations, length of stay associated with the reservation, time between booking date and flight date, payment status.

13. (Original) The method as set forth in claim 12, wherein said commodity details regarding said current group reservation include information related to one or more of the following: carrier name, flight origin, flight destination, booking class, flight distance, departure time, connection time, arrival time, departure date, arrival date, flight duration, number of distinct legs comprising a complete one-way itinerary, aircraft type, aircraft capacity.

14. (Previously presented) Computer-readable code embodied on computer-readable media for conducting materialization forecasting with respect to group reservations made by a group coordinator for the potential purchase of a particular perishable commodity, comprising:

first subprocesses for gathering past system-wide reservation information relating to past group reservations for perishable commodities that have already perished, said past system-wide reservation information including information unrelated to said particular perishable commodity;

second subprocesses for gathering current reservation information relating to a current group reservation for said particular perishable commodity, which current reservation information has not yet perished;

third subprocesses for comparing said gathered past reservation information unrelated to said particular perishable commodity and said current reservation information;

fourth subprocesses for calculating the materialization level of said current group reservation based on said comparison; and

fifth subprocesses for outputting a materialization forecast result for said current group reservation based on said calculated materialization level.

15. (Previously presented) The computer-readable code as set forth in claim 14, wherein said past reservation information includes historical commodity details unrelated to said particular perishable commodity.

16. (Previously presented) The computer-readable code as set forth in claim 15, wherein said past reservation information further includes Point-of-Sale (POS) information included in said past system-wide reservation that is unrelated to said potential purchase of said particular perishable commodity.

17. (Previously presented) The computer-readable code as set forth in claim 16, wherein said past reservation information further includes materialization information unrelated to said potential purchase of said particular perishable commodity.

18. (Original) The computer-readable code as set forth in claim 17, wherein said past reservation information includes demographic information about group coordinators who made said past group reservations.

19. (Original) The computer-readable code as set forth in claim 18, wherein said demographic information includes one or more of the following pertaining to said group coordinators who made said past group reservations: age, sex, national origin, citizenship, country of residence, occupation, employer, annual income, education.

20. (Previously presented) The computer-readable code as set forth in claim 19, wherein said current group reservation information further includes commodity details regarding said particular perishable commodity.

21. (Previously presented) The computer-readable code as set forth in claim 20, wherein said current group reservation information further includes POS information pertaining to said particular perishable commodity.

22. (Previously presented) The computer-readable code as set forth in claim 21, wherein said current reservation information includes demographic information about a group coordinator making said current reservation for said particular perishable commodity.

23. (Original) The computer-readable code as set forth in claim 22, wherein said demographic information includes one or more of the following pertaining to said group coordinator making said current group reservation: age, sex, national origin, citizenship, country of residence, occupation, employer, annual income, education.

24. (Previously presented) The computer-readable code as set forth in claim 23, wherein said perishable commodities comprise airline seats, and wherein said historical commodity details include information related to one or more of the following with respect to said airline seats: carrier name, flight origin, flight destination, booking class, flight distance, departure time, connection time, arrival time, departure date, arrival date, flight duration, number of distinct legs comprising a complete one-way itinerary, aircraft type, aircraft capacity.

25. (Original) The computer-readable code as set forth in claim 24, wherein said POS information includes one or more of the following: POS type, POS country, booking carrier, booking recency, change recency, fare code, number of passengers in said past group reservations, length of stay associated with the reservation, time between booking date and flight date, payment status.

26. (Original) The computer-readable code as set forth in claim 25, wherein said commodity details regarding said current group reservation include information related to one or more of the following: carrier name, flight origin, flight destination, booking class, flight distance, departure

time, connection time, arrival time, departure date, arrival date, flight duration, number of distinct legs comprising a complete one-way itinerary, aircraft type, aircraft capacity.

EVIDENCE APPENDIX

No additional evidence presented.

RELATED PROCEEDINGS APPENDIX

No decision presently rendered.